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Original Research

The Effectiveness of Judicial Instructions on Eyewitness Evidence in Sensitizing Jurors
to Suggestive Identification Procedures Captured on Video

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THE EFFECTIVENESS OF JUDICIAL INSTRUCTIONS

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Abstract

Objectives. One of the legal safeguards designed to educate jurors about eyewitness evidence is judicial instructions. However, their effectiveness in sensitizing jurors to eyewitness accuracy and suggestive identification procedures captured on video is unknown.

Methods. Participants ($N = 232$) watched the video-recorded identification and testimony of one of 16 genuine eyewitnesses. We varied the suggestiveness of the identification procedure, whether they saw an accurate or inaccurate identification, and whether or not they received Victorian judicial instructions about eyewitness evidence.

Results. Participants were sensitive to eyewitness accuracy when identification procedures were non-suggestive, with participants more likely to believe accurate eyewitnesses than inaccurate eyewitnesses. This sensitivity to identification accuracy was impaired when participants saw an identification made under suggestive circumstances. Judicial instructions did not significantly affect participants' judgments with one exception: when they led to confusion. Participants who saw an identification obtained under suggestive circumstances were more willing to believe the eyewitness when they read the judicial instructions compared to those in the control condition.

Conclusions. Suggestive identification procedures impaired participants' sensitivity to eyewitness accuracy. The Victorian judicial instructions did not improve participants' sensitivity. This is the first test of judicial instructions that used Bayesian analyses to establish the absence of an effect. Thus, judicial instructions might not improve sensitivity to eyewitness accuracy or be an effective remedy for the damaging effects of suggestive identification procedures.

Keywords: eyewitness evidence, judicial instructions, juror decision making, jury instructions, video-recorded identification procedure.

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The Effectiveness of Judicial Instructions on Eyewitness Evidence in Sensitizing Jurors to Suggestive Identification Procedures Captured on Video

Eyewitnesses often play a crucial role in the trial process because they can shed light on one of the main issues in criminal cases—the identity of the perpetrator. Despite the utility of eyewitness testimony, real cases and psychological research reveal that eyewitnesses can sometimes mistakenly identify innocent people as perpetrators (e.g., The Innocence Project 2019). Importantly, the misidentification itself does not lead to a conviction. It is up to the fact-finders (e.g., judge or jury) to evaluate the entirety of the evidence, including the eyewitness testimony, and decide whether the defendant is guilty. People often believe eyewitnesses regardless of the actual quality of the witnessing and identification conditions or the accuracy of the identification (for a review, see Boyce et al. 2007).

Judicial instructions are used in trials to educate jurors about procedural and evidentiary issues and are intended to assist jurors in making more informed decisions. Although countries around the world use judicial instructions, research raises questions about their effectiveness, particularly in cases with eyewitness evidence (Bornstein and Greene 2017). Most of these studies, however, have examined the judicial instructions used in the United States of America, and none have examined their effectiveness when combined with a new type of eyewitness evidence—the video-recorded identification procedure. The present study examined whether Victorian judicial instructions (used in Victoria, Australia) can sensitize participants to suggestive identification procedures and to eyewitness accuracy when participants viewed a genuine-eyewitness's video-recorded identification procedure and testimony.

Video-recorded Identification Procedures

Video-recording the identification procedure itself might be one way to overcome the overbelief of eyewitness testimony (Kassin 1998; Reardon and Fisher 2011; Wilford and

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Wells 2013). The video-record may provide useful information about the eyewitness's confidence at the time of their identification, rather than during their testimony (Brewer and Wells 2006; Wixted and Wells 2017) and preserve informative cues that might otherwise be obscured by the time the witness testifies at trial (e.g., Reardon and Fisher 2011; Kaminski and Sporer 2017).

Indeed, when Reardon and Fisher (2011) exposed participants to eyewitnesses' video-recorded identification procedures along their testimony (cf. testimony alone), participants were better able to differentiate accurate from inaccurate eyewitnesses. In other words, they showed sensitivity to eyewitness accuracy when they watched the eyewitness make their identification decision from a simultaneous lineup. Beaudry et al. (2015) also found evidence of sensitivity to eyewitness accuracy, but only when evaluators saw eyewitnesses make their identifications from simultaneous, but not sequential, lineups. Moreover, when mock-jurors viewed eyewitnesses who received post-identification feedback, their sensitivity to eyewitness accuracy was reduced, even though they were aware that the officer commented on the eyewitness's identification decision (Beaudry et al. 2015). These results suggest that jurors who view video-recorded identification procedures might be able to discriminate between accurate and inaccurate eyewitnesses, but perhaps only when the evidence was obtained from simultaneous lineups under non-suggestive procedures.

Extensive research has established that eyewitnesses can be influenced by a variety of factors during the identification procedure, including the instructions given to them before viewing the lineup (see Steblay 1997), the way the lineup is constructed (e.g., Lindsay and Wells 1980; Fitzgerald et al. 2013), and comments made by the lineup administrator after their identification decision (e.g., Steblay et al. 2014; Wells and Bradfield 1998). More recently, researchers have investigated how jurors are affected by the influence exerted on eyewitnesses during the identification procedure. Douglass and Jones (2011) tested whether

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presenting the video-recorded identification procedure (cf. reading a confidence statement) sensitized participants to confidence inflation. When there was a discrepancy between the witness's confidence at the time of the identification and at the time of the trial, participants were more likely to provide lower ratings of the defendant's guilt when they watched the video-recorded identification procedure than when they heard the witness read a confidence statement. That is, they showed more sensitivity to confidence inflation when they could observe the original identification procedure. In another study, mock-jurors who watched a scripted video-recorded identification procedure and the eyewitness testimony (cf. testimony only) demonstrated greater sensitivity to the suggestiveness of single-blind administration (Modjadidi and Kovera 2018). Critically, neither Douglass and Jones (2011) nor Modjadidi and Kovera (2018) manipulated eyewitness accuracy, so they could not investigate whether mock-jurors were sensitive to accuracy.

Smalarz and Wells (2014) shed some light on this issue: they manipulated the presence of post-identification feedback and eyewitness accuracy: jurors' ability to discriminate between accurate and inaccurate eyewitnesses was impaired when they watched the testimony of eyewitnesses who received post-identification feedback (cf. no feedback). However, their participants did not view the video-recorded identification procedure, so questions remain as to whether viewing the video-record would, first, alert them to the lineup administrator's comment on the eyewitness's identification decision and, second, affect their ability to discriminate between accurate and inaccurate eyewitnesses. Taken together, there is some evidence that video-recorded identification procedures might improve people's sensitivity to suggestive identification procedures and to identification accuracy, independently. Nonetheless, given that factors within the identification procedure can influence eyewitnesses' identification decisions and confidence, research needs to establish

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whether suggestive identification procedures influence people's ability to discriminate between accurate and inaccurate identifications captured on video.

Judicial Instructions

Jurors might not be sensitive to suggestive identification procedures because they lack knowledge about the factors that can influence the reliability of eyewitness evidence. In particular, jurors tend to underestimate the impact of the procedures used by the police on identification accuracy (e.g., Benton et al. 2006; Shaw et al. 1999). Furthermore, Desmarais and Read (2011) warn that, even if they do understand how an eyewitness can be influenced by external factors, that knowledge does not necessarily translate into an ability to make accurate judgments in real court settings. Indeed, jurors were more likely to believe evidence obtained from suggestive identification procedures despite being aware of the suggestion (Beaudry et al., 2015) and having rated the procedure as biased (Devenport et al. 2002).

Judicial instructions are one way to educate jurors about factors that can affect the quality of eyewitness evidence. Judicial instructions are a legal safeguard in which the judge presents the jury with information about the psychology of eyewitness identifications and discusses a number of factors that should help jurors assess this evidence. Importantly, however, the simple presentation of judicial instructions does not guarantee that jurors will comprehend and appropriately apply the information to the case at hand (Baguley et al. 2017); we return to the question of the effectiveness of judicial instructions in the next section. First, we discuss the possible effects of judicial instructions on jurors' decisions and highlight the importance of investigating how legal safeguards influence people's sensitivity to identification accuracy.

Possible Effects of Judicial Instructions

Baguley et al.'s (2017) application of McGuire's model of persuasion to judicial instructions explains that, once presented, judicial instructions can be effective only if jurors

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pay attention to and understand the instructions. Then, if they accept the information provided in the instructions, jurors must remember the content of the instructions, and ultimately apply the information to the case at hand (McGuire 1972). When determining jurors' application of judicial instructions, researchers typically measure jurors' verdicts (either as a binary decision, e.g., Ramirez et al. 1996, on a scale, e.g., Jones et al. 2017) and their perceptions of the eyewitness (e.g., Martire and Kemp 2009).

If jurors do apply the information to the case at hand, judicial instructions can have four potential effects on jurors' decisions: (i) confusion, (ii) skepticism, (iii) sensitivity, or (iv) a null effect (Cutler et al. 1989). First, confusion refers to a situation in which jurors did not appropriately apply the information provided by the instructions and, thus, incorrectly evaluated the evidence. For example, when jurors are confused they would give more weight to evidence that is more likely to be unreliable than reliable. Second, skepticism occurs when jurors disbelieve the eyewitness evidence regardless of the quality of the evidence and discount both strong and weak identification evidence.

Third, sensitivity can be measured in two ways: (a) sensitivity to witnessing and/or identification conditions, and (b) sensitivity to eyewitness accuracy (Martire and Kemp 2011). Sensitivity to witnessing and identification conditions is evident when jurors take into account the circumstances under which a witness viewed a crime and made an identification, and believe an eyewitness only if the circumstances were favorable (i.e., good witnessing conditions and non-suggestive identification procedures) but not if they were unfavorable. When jurors are sensitive to eyewitness accuracy, they believe accurate eyewitnesses and disbelieve inaccurate ones.

Martire and Kemp (2009) underscore the difference between studies that measure sensitivity to witnessing and identification conditions and those that investigate sensitivity to eyewitness accuracy. In the first type, researchers manipulate the quality of witnessing and/or

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identification conditions in a transcript of a simulated case (e.g., Geiselman and Mendez 2005) or they show a video of an actor playing an eyewitness (e.g., Devenport et al. 2002; Modjadidi and Kovera 2018). These studies can demonstrate whether legal safeguards make jurors more knowledgeable about eyewitness factors.

In real cases, however, jurors do not simply evaluate witnessing and identification conditions, but rather must determine whether the eyewitness accurately identified the culprit or mistakenly selected an innocent person. Studies that measure sensitivity to eyewitness accuracy use the genuine eyewitness paradigm to increase their ecological validity. In this paradigm, naïve participants first witness a crime, attempt to identify the culprit from a lineup (they can either accurately identify the culprit from the mock-crime video or mistakenly identify an innocent lineup member), and then testify about their experiences like they would in a real case (Wells et al. 1979). The distinction between the two types of sensitivity is critical because we cannot conflate quality of witnessing and identification conditions with eyewitness accuracy (e.g., Martire and Kemp 2011); we must recognize that, even in poor witnessing conditions, an eyewitness can make an accurate identification and vice versa (e.g., Mansour et al., 2015). Thus, examining people's sensitivity to identification accuracy is crucial for two reasons. First, it can shed light on how people evaluate real eyewitness evidence (Kaminski and Sporer 2017), which can further our theoretical developments in this area. Second, eyewitness evidence is a key piece of information about the identity of the perpetrator; in the search for justice, we want jurors to render guilty verdicts only for the actual perpetrator not an innocent suspect.

The final potential effect of judicial instructions—a null effect—emerges when jurors do not apply the judicial instructions to the case at hand. That is, no significant differences emerge between the decisions of jurors who received judicial instructions and those who did not. Having reviewed the four possible effects of judicial instructions on jurors' decisions, we

now turn to the research examining whether judicial instructions influence jurors' evaluation of eyewitness evidence.

Judicial instructions in eyewitness cases

Research into the effectiveness of judicial instructions on eyewitness evidence has generally focused on jurors' *application* of the instructions to a case with eyewitness evidence. Before discussing those results, we look at the limited evidence examining the earlier stages of McGuire's (1972) model of persuasion in the context of cases with eyewitness evidence. In terms of memory for judicial instructions, Ramirez et al. (1996) found that participants recalled only 31% of the 10 elements contained in the *Telfaire* instructions when presented orally to the participants. Attempts to directly measure comprehension using multiple-choice questionnaires demonstrated that, compared to a no-instruction condition, neither orally-presented *Telfaire* (Greene 1988) nor orally-presented *Henderson* instructions (Jones et al. 2017) significantly improved jurors' knowledge of eyewitness factors. This is surprising because, in another study, mock-jurors' reported that they understood the *Henderson* instructions (Papailiou et al. 2015). Nonetheless, jurors' difficulty in comprehending judicial instructions is not limited to cases with eyewitness identification evidence and extends to jurors' understanding of important legal concepts, such as standard of proof (for an overview, see Baguley et al. 2017).

As discussed by Baguley et al. (2017), jurors' lack of comprehension is problematic because jurors cannot apply information that they do not understand (McGuire 1972). Moreover, in line with the dual process models of persuasion (e.g., Chaiken, 1980; Petty and Cacioppo 1986), jurors who do not understand the instructions may instead rely on mental shortcuts or irrelevant features (e.g., the judge's authority) when evaluating the instructions. It is difficult to pinpoint exactly why jurors did not understand the instructions in these studies, but one possibility is that jurors were unable to pay attention to instructions presented

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orally by the judge rather than in a written document. Baguley et al. (2017) bring this explanation into question though because they found that jurors were more likely to apply the instructions in cases when they heard the instructions rather than when they read them, presumably because they had not read them thoroughly.

Measuring comprehension using multiple-choice tests is problematic because it relies on jurors' memory and may not reflect true comprehension of the content (e.g., Baguley et al. 2017; Rose and Ogloff, 2001). An alternative approach to measuring comprehension is by testing jurors' application of the instructions because in order to apply them, jurors need to first understand them. In cases with eyewitness evidence, jurors can appropriately apply judicial instructions if they demonstrate increased sensitivity to witnessing and identification conditions or increased sensitivity to eyewitness accuracy. Most studies examining the effectiveness of judicial instructions can speak only to jurors' sensitivity to witnessing and identification conditions because these studies used simulated evidence paradigms with witnessing and identification condition manipulations rather than the genuine eyewitness paradigm. Furthermore, most studies investigated the effectiveness of US-based judicial instructions (e.g., *US v. Telfaire* 1972; *New Jersey v. Henderson* 2011). The notable exception to both of these claims is the work of Martire and Kemp (2009) that tested the effectiveness of judicial instructions used in New South Wales, Australia, in sensitizing jurors to the accuracy of eyewitnesses' testimony.

There is no published evidence demonstrating that the *Telfaire* instructions produce sensitivity to witnessing and identification conditions. Instead, the *Telfaire* instructions led to skepticism (Greene 1988), confusion (Ramirez et al. 1996: Experiment 1), or had a null effect on jurors' judgments (Cutler et al. 1990). Unfortunately, attempts to improve US judicial instructions by incorporating psychological research—the *Henderson* instructions—have not fared better than their predecessor. The *Henderson* instructions either led to skepticism

(Papailiou et al. 2015; Dillon et al. 2017) or had a null effect on jurors' verdict (Jones et al. 2017), although a revised version did increase sensitivity to witnessing conditions (Jones and Penrod 2018). In the only test of jurors' sensitivity to eyewitness accuracy, Martire and Kemp (2009) found that the New South Wales judicial instructions (Judicial Commission of NSW 2006) had a null effect on jurors' judgments. In all of these studies, judicial instructions were presented orally, thus, the format in which they were delivered cannot explain their ineffectiveness.

In light of these null findings, we note that all of the aforementioned studies used null-hypothesis significance testing. With these analyses, there are two possible explanations for a null effect (for detailed discussions, see e.g., Dienes 2014; Harms and Lakens 2018). On the one hand, the instructions had no meaningful effect on jurors' decisions. On the other hand, the null effect might indicate data insensitivity (e.g., an underpowered study), preventing the study from detecting an effect that did exist. That is, if null effects emerge from null-hypothesis significance tests, researchers cannot differentiate between evidence of absence and the absence of evidence of the effect, respectively. Thus, we need to rely on different statistical techniques, such as Bayesian analyses, to make more definitive claims about whether judicial instructions influence jurors' judgments (e.g., Dienes 2014).

The existing research gives little hope about the effectiveness of judicial instructions in sensitizing jurors, at least as currently written and presented (Baguley 2017). Nevertheless, researchers should continue to investigate the effectiveness of instructions used, particularly those from other countries or states that have not been examined, because legal systems will continue to rely on them as a legal safeguard unless there is a strong evidence base to definitively demonstrate their ineffectiveness. In this study, we investigated the yet untested judicial instructions used in Victoria, Australia, which were revised in 2015 (Judicial College

of Victoria, Australia 2015) and are currently being used in criminal cases (Davies v The Queen 2018).

Present Study

The present study evaluates the effectiveness of Victorian judicial instructions in improving participants' sensitivity to identification conditions and to eyewitness accuracy presented through a video-record of the identification procedure and eyewitness testimony. Participants watched evidence of one eyewitness who made an identification (either accurate or inaccurate) under suggestive or non-suggestive identification conditions. Half of the participants then read the judicial instructions and half completed a control activity. Our key dependent variables related to participants' belief of the eyewitness, as reflected by three measures: verdict, likelihood that the eyewitness made a correct identification, and perceptions of the eyewitness (see Measures for more detail). We also investigated participants' perceptions of the administrator and lineup presentation (see Hypothesis 4). Finally, we explored participants' confidence in their verdict (i.e., confidence-in-verdict measure), but did not make explicit predictions about how our manipulations would affect that measure.

We hypothesized an Identification Accuracy $\times$ Identification Procedure interaction. When viewing a non-suggestive identification procedure, participants will be sensitive to eyewitness accuracy, as evidenced by greater belief of an accurate eyewitness than an inaccurate eyewitness. When viewing a suggestive procedure, participants will believe eyewitnesses regardless of their identification accuracy (Hypothesis 1).

If judicial instructions can sensitize participants to the identification procedure conditions, we would expect a significant two-way Identification Procedure $\times$ Judicial Instructions interaction. Specifically, participants who read the judicial instructions would believe eyewitness identifications from non-suggestive conditions more than those from

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suggestive conditions. In contrast, the control group would believe eyewitnesses regardless of the quality of identification procedure (Hypothesis 2).

If judicial instructions can sensitize participants to eyewitness accuracy, we would predict a significant two-way Identification Accuracy $\times$ Judicial Instructions interaction (Hypothesis 3). That is, participants in the judicial instructions (cf. control) condition will believe accurate eyewitnesses more often than inaccurate ones, but participants in the control condition would show less sensitivity to eyewitness identification accuracy.

Finally, we hypothesized a main effect of identification procedure. Participants who viewed the suggestive procedure would rate the lineup as less fair and the lineup administrator as having more influence on the eyewitness compared to the non-suggestive condition (i.e., Hypothesis 4). We did not have specific predictions about how Identification Accuracy or Judicial Instructions would affect these measures; however, if judicial instructions assisted jurors in evaluating the evidence, we would expect a Judicial Instructions $\times$ Identification Procedure interaction.

Method

Disclosures

The data (both raw and clean) and the complete survey are available on the Open Science Framework (OSF; <https://tinyurl.com/ydghqyvj>). We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study. This project has been approved by Swinburne's Human Research Ethics Committee (SUHREC) in line with the Australian National Statement on Ethical Conduct in Human Research.

Design

This study used a 2 (Identification [ID] Procedure: non-suggestive vs. suggestive) $\times$ 2 (ID Accuracy: accurate vs. inaccurate) $\times$ 2 (Judicial Instructions: control vs. Victorian judicial instructions) between-subjects factorial design. We use the terms non-suggestive and

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suggestive to reflect that the lineup administrator either did or did not follow best practice lineup recommendations, respectively (Wells et al. 1998; see Materials for more detail).

Accurate eyewitnesses correctly identified the target from the target-present lineup, whereas inaccurate eyewitnesses identified the innocent suspect from the target-absent lineup.

Participants

The final sample of participants consisted of 232 students (50 males, 182 females) enrolled in first-year psychology and criminology units at a large Australian university. They participated in exchange for extra credit. Participants' ages ranged from 16 to 73 years ($M = 31.81$, $SD = 10.83$). Most participants self-identified as Caucasian (81%), followed by Asian (9%), "other" (9%), and Indigenous (0.9%). We based our data collection stopping rule on Simmons et al. (2011) recommendation to have a minimum of 20 useable participants per cell and collected data from April to October 2016.

Materials

Eyewitness identification and eyewitness testimony stimuli. We used a selection of the stimuli created by Beaudry et al. (2015) that we selected based on their inclusion in the conditions detailed below. In each of the four Identification Procedure x Identification Accuracy conditions, we included video-recorded identification and testimony stimuli from four eyewitnesses to increase stimuli sampling (Wells and Windschitl 1999). To create the stimuli, Beaudry et al. (2015) had participants individually view one of four targets in a mock-crime video (theft from an unattended purse). After a short delay, participants were informed that they were eyewitnesses to a crime (hereafter referred to as eyewitnesses) and asked to take part in an identification procedure and to provide testimony about their experience. The identification procedure was video-recorded so that the administrator and the eyewitness were seen in profile sitting at the table.

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The stimuli in the present study showed eyewitness being presented with a six-person photographic simultaneous lineup of white males, that either contained the target (target-present lineup) or an innocent suspect (target-absent lineup). In the non-suggestive identification procedure condition, the lineup administrator did not know which lineup member was the target in the mock-crime video (i.e., was blind to the suspect), the administrator provided unbiased instructions warning that the culprit may or may not be present in the lineup, and the lineup was constructed to be fair with no lineup member standing out from the others. In the suggestive identification procedure condition, the administrator knew the identity of the suspect, provided instructions saying, “All you have to do is pick him out,” and the lineup was biased such that the suspect (either innocent or guilty) stood out from the lineup members. Although the suspect was the only plausible choice in the lineup, the administrator did not direct the eyewitness toward any particular suspect. We presented all participants in our study with the lineup that the eyewitness viewed during the identification (see Appendix A for examples of non-suggestive and suggestive lineups).

In all conditions, after the eyewitness made an identification decision, the administrator asked the eyewitness to report their confidence in their identification in their own words. After a short delay, eyewitnesses were asked a series of testimony-relevant questions concerning the crime and the identification procedure. The testimony was video-recorded with the eyewitness facing the camera, and the researcher asked questions from off-camera.

Judicial instructions. The Victorian judicial instructions (see Appendix B) warn the jury that the identification evidence is potentially unreliable and ask jurors to consider factors regarding the circumstances of observation, factors concerning the witness, and factors concerning the identification. The judicial instructions took approximately four minutes to read.

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Control. Participants in the control condition completed a filler activity, which consisted of memory tasks that took approximately two minutes to complete. Participants were asked to memorize strings of random letters and numbers and recall them after a small delay (similar to the task used in Martire and Kemp 2009).

Questionnaire. Please refer to Appendix C for the complete questionnaire. As discussed, we measured participants' belief of the eyewitness with three variables: verdict (binary: guilty vs. not guilty); the likelihood that the person identified by the witness was the culprit [likelihood ID], ranging from 0% (*very unlikely*) to 100% (*very likely*); and participants' perceptions of the witness, ranging from 0 (*not good*) to 10 (*very good*). The perceptions of the witness scale was an average of three measures: the witness's view of the culprit, amount of attention the witness paid to the culprit's face, and the clarity of the witness's memory at the time of the lineup, $\alpha = .85$, $r_s = .65-.68$, $p_s \leq .001$.

We also measured their ratings of the fairness of the lineup, ranging from 0 (*completely unfair*) to 10 (*completely fair*) and their perceptions of the administrator's influence on the eyewitness, ranging from 0 (*no influence*) to 10 (*definite influence*). The perceptions of the administrator's influence scale was an average of four measures: the officer's pressure to choose someone, the officer's influence on the witness's confidence, the officer's knowledge of the suspect's identity, and the officer's investment in the outcome of the lineup, $\alpha = .80$, $r_s = .39-.67$, $p_s \leq .001$. Cronbach's alphas for both combined scales—perceptions of the witness and perceptions of the administrator's influence—are at least .80 which is above recommended cut-off score (DeVellis 2012). Finally, we report the confidence-in-verdict measure used by Tenney et al. (2007), which ranged from -100% (*extremely confident in the not guilty verdict*) to 100% (*extremely confident in the guilty verdict*).

Participants also completed a belief measure ("Do you believe the person identified by the witness is actually the culprit?" binary: yes or no) and confidence-in-belief. The pattern

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for these measures was identical to verdict and confidence-in-verdict; for this reason, we do not report these results in this manuscript. Data from all questions are available

<https://tinyurl.com/y79j8afn>

Comprehension of judicial instructions. In the Victorian judicial instructions (but not the control) condition, we measured participants' comprehension of the instructions (e.g., Greene 1988; Jones et al. 2017). Judicial instructions cannot be effective if jurors do not understand them (e.g., Baguley et al. 2007; Semmler and Brewer 2002); thus, it is important to assess whether participants understood the information presented to them. The comprehension questions included six multiple choice and four true/false questions (see Table 1) that covered many of the topics discussed in the judicial instructions (e.g., "The degree of similarity between the suspect and other people in the photoboard can influence the accuracy of an identification").

Manipulation checks. Manipulation checks asked participants to describe what they saw in both eyewitness videos and to indicate whether they read the instructions or completed a filler activity. The full questionnaire is available at <https://tinyurl.com/ybf7p5vt>.

Procedure

Participants signed up for the study and received a link to the online study (Qualtrics, Provo, UT). Following the link, participants read the consent information statement and provided their consent, answered demographic questions, and read instructions about their decision-making role and the distinction between a suspect and a culprit. Next, they saw a video-recorded identification procedure and testimony of one of the eyewitnesses. Following the videos, participants saw the photo lineup presented to the eyewitness during the identification procedure. After the eyewitness evidence, half of the participants read the Victorian judicial instructions, whereas the other half completed a filler activity. Participants then completed the questionnaire before being thanked for their participation and debriefed.

Results

Data Preparation

Manipulation checks. The initial sample consisted of 336 participants. We excluded participants who did not finish the study ($n = 20$), who took either less than 10 or more than 55 minutes ($n = 37$) to complete the study (study duration: $M = 25.41$, $SD = 8.48$), who indicated that they did not see one of the videos ($n = 24$), and those who failed the instruction condition manipulation check ($n = 23$). The final sample consisted of 232 participants. Due to a programming error, 59 of these 232 participants did not complete the verdict and the confidence-in-verdict measures, but we report their data for all other measures. See Appendix D for the number of participants in each condition for each reported dependent variable.

Confidence-in-verdict measure. The confidence-in-verdict measure was created by multiplying the confidence rating by -1 in cases of a not-guilty verdict (Tenney et al. 2007). Thus, -100% indicates that a participant was very confident in a not-guilty verdict, whereas 100% indicates high confidence in a guilty verdict.

Data Analytic Approach

Each participant saw one witness, but we had four witnesses per condition. Rather than analyze each witness as separate stimuli, we collapsed data across the four witnesses in the conditions (e.g., Beaudry et al. 2015; Kaminski and Sporer 2017; Reardon and Fisher 2011). For example, we combined data from all participants who saw an accurate eyewitness in the non-suggestive identification procedure condition, regardless of which of the four eyewitnesses they viewed. This approach increased stimulus sampling and generalizability (Wells and Windschitl 1999).

For our binary measure (verdict), we used a binary logistic regression, with the main effects and all interactions of three independent variables entered hierarchically (described in the corresponding section). We report percentages for the binary measure. For our continuous

measures (likelihood that the person identified by the witness was the culprit; perceptions of the witness; perceptions of the lineup fairness; perceptions of the lineup administrator; confidence-in-verdict), we used ANOVAs to examine the independent and interactive effects of ID accuracy, ID procedure, and judicial instructions. For all continuous measures we report means and standard deviations. For effect sizes, we report 95% confidence intervals in square brackets.

In addition, we also conducted Bayesian ANOVAs to estimate Bayes factors (JASP Team 2018), which quantifies the evidence in favor of both the null (BF_{01}) and the alternative hypotheses (BF_{10} ; e.g., Wagenmakers et al. 2018; Jarosz and Wiley 2014). The Bayes Factors BF_{10} indicates the amount of support that the data provide for the alternative hypothesis compared to the null hypothesis, whereas BF_{01} indicate the reverse: the amount of support for the null hypothesis compared to the alternative hypothesis. According to Lee and Wagenmakers (2014, as cited in Stefan et al. 2019), the strength of Bayes factors BF_{10} can be interpreted using the following rules: 1–3 provides anecdotal evidence for the alternative hypothesis; 3–10 provides moderate evidence for the alternative hypothesis; 10–30 provides strong evidence for the alternative hypothesis; 30–100 provides very strong evidence for the alternative hypothesis; and a Bayes factor larger than 100 provides extreme evidence for the alternative hypothesis. For the Bayesian ANOVAs in our study, we used the default prior of $r = 0.5$ for fixed effects for two reasons. First, it is not clear what an informed prior would be given the inconsistency of results examining judicial instructions. Second, the default prior provides a more conservative test of the null hypothesis; as such, if our evidence supports the null over alternative hypothesis, we can be more confident about concluding that judicial instructions had no meaningful effect.

Verdict

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Variables were entered hierarchically; ID accuracy was entered in the first step, ID procedure was entered in the second step, judicial instructions manipulation was entered at the third step, ID Accuracy $\times$ ID Procedure interaction was entered in the fourth step, ID Accuracy $\times$ Judicial Instructions interaction was entered in the fifth step, ID Procedure $\times$ Judicial Instructions interaction was entered in the sixth step, and ID Accuracy $\times$ ID Procedure $\times$ Judicial Instructions interaction was added in the seventh step. The last three steps did not significantly improve the model, $ps > .42$, and were removed. The model that included the three main effects and the ID Accuracy $\times$ ID Procedure interaction was statistically significant, $\chi^2(4) = 25.99$, $p < .001$, explaining 19% (Nagelkerke R^2) of the variance in verdict, and correctly classifying 65.90% of cases. The judicial instructions main effect did not improve the model fit; thus, the final model included ID accuracy, ID procedure, and the ID Accuracy $\times$ ID Procedure interaction.

The final model was statistically significant, $\chi^2(3) = 24.93$, $p < .001$, explaining 18.10% (Nagelkerke R^2) of the variance in verdict, and correctly classifying 65.30% of cases. As predicted in Hypothesis 1, the ID Accuracy $\times$ ID Procedure interaction was significant, $B = 1.55$, $SE = .72$, Wald (1, $n = 173$) = 4.71, $p = .03$ (see Figure 1). When the ID procedure was non-suggestive, participants demonstrated sensitivity to eyewitness accuracy, with more participants rendering guilty verdicts after watching an accurate ID than an inaccurate ID (57% and 12%, respectively), $\chi^2(1) = 19.08$, $p < .001$, OR = 9.74 [3.22, 29.49]. However, when participants viewed a suggestive ID procedure, their verdicts did not significantly differ for accurate and inaccurate IDs (53% and 36%, respectively), $\chi^2(1) = 2.73$, $p = .10$, OR = 2.06 [0.87, 4.87]. This reduction in discrimination was driven by the increased belief of inaccurate IDs obtained under suggestive conditions rather than non-suggestive conditions, $\chi^2(1) = 6.56$, $p = .01$, OR = 4.11 [1.33, 12.69]. The final model did not provide support for either Hypotheses 2 or 3.

Likelihood that the Person Identified by the Witness was the Culprit

Participants estimated higher likelihood that the eyewitness correctly identified the culprit when the eyewitness made an accurate ID ($M = 55.78\%$, $SD = 21.46$) compared to an inaccurate ID ($M = 43.12\%$, $SD = 22.03$), $F(1, 224) = 21.93$, $p < .001$, $d = 0.59$ [-2.20, 3.37].

Participants also estimated a greater likelihood that the eyewitness correctly identified the culprit when the ID procedure was suggestive ($M = 53.34\%$, $SD = 23.21$) compared to non-suggestive ($M = 45.78\%$, $SD = 21.41$), $F(1, 224) = 8.88$, $p = .003$, $d = 0.34$ [-2.52, 3.20].

As predicted in Hypothesis 1 and found with verdict, a significant ID Procedure $\times$ ID Accuracy interaction emerged, $F(1, 224) = 12.46$, $p = .001$, $\eta_p^2 = .05$. Participants demonstrated sensitivity to eyewitness accuracy when the ID procedure was non-suggestive, but not when it was suggestive. Specifically, when participants viewed identifications obtained from non-suggestive procedures, participants estimated a greater likelihood that the eyewitness correctly identified the culprit when they viewed an accurate ID ($M = 56.68\%$, $SD = 18.24$) rather than an inaccurate ID ($M = 34.09\%$, $SD = 18.25$), $t(114) = 6.67$, $p < .001$, $d = 1.25$ [-2.04, 4.54]. When they viewed a suggestive procedure, participants' estimates of the likelihood that the witness identified the culprit did not significantly vary according to ID accuracy (accurate ID: $M = 54.84\%$, $SD = 24.48$; inaccurate ID: $M = 51.84\%$, $SD = 21.99$), $t(114) = 0.69$, $p = .49$, $d = 0.13$ [-4.07, 4.33].

A significant ID Procedure $\times$ Judicial Instructions interaction indicated that the judicial instructions led to confusion, $F(1, 224) = 4.47$, $p = .036$, $\eta_p^2 = .02$ (see Figure 3). When the ID procedure was suggestive, participants who read the judicial instructions (cf. control) estimated a greater likelihood that the eyewitness made an accurate ID (judicial instructions: $M = 57.62\%$, $SD = 21.92$; control: $M = 49.35\%$, $SD = 23.85$) $t(114) = 1.94$, $p = .055$, $d = 0.36$ [-3.78, 4.50]. There were no differences between the two instruction conditions when the

procedure was non-suggestive, $t(110) = -0.55$, $p = .59$. This result is contrary to the predicted interaction detailed in Hypothesis 2.

Bayesian ANOVA. The Bayesian ANOVA demonstrated that the model with the ID Accuracy $\times$ ID Procedure interaction was the best fitting model, which gave strong support for the alternative hypothesis over the null ($BF_{10} = 342,260$). Thus, both the inferential and Bayesian analyses provided strong support for Hypothesis 1.

Contrary to the inferential statistics and Hypothesis 2, the Bayesian ANOVA demonstrated that the model with the ID Procedure $\times$ Judicial Instructions interaction provided weak evidence for the null hypothesis over the alternative ($BF_{01} = 1.56$). In line with Hypothesis 3, but contrary to Hypothesis 3, the Bayesian ANOVA suggested that the model that includes the ID Accuracy $\times$ Judicial Instructions interaction had strong support for the alternative hypothesis over the null ($BF_{10} = 54$). Nonetheless, the ID Accuracy $\times$ ID Procedure model outperformed this model by a factor of more than 6,000. Finally, to evaluate how judicial instructions affected participants' likelihood ratings independent of our manipulations, we report the model with only the judicial instructions term included. This model provided moderate evidence in support of the null hypothesis over the alternative hypothesis ($BF_{01} = 3.96$).

Perceptions of the Witness

For this aggregate measure, higher numbers indicate more positive perceptions of the witness. A main effect of ID procedure indicated that participants reported more positive perceptions of the witness when the ID procedure was suggestive ($M = 5.91$, $SD = 1.93$) than non-suggestive ($M = 5.14$, $SD = 2.46$), $F(1, 224) = 7.60$, $p = .006$, $d = 0.35$ [0.07, 0.63]. A main effect of ID accuracy revealed that participants were sensitive to eyewitness accuracy, reporting more positive perceptions of the witness when the ID was accurate ($M = 6.08$, $SD = 2.13$) than inaccurate ($M = 4.96$, $SD = 2.21$), $F(1, 224) = 15.56$, $p < .001$, $d = 0.52$ [0.24,

0.80]. Contrary to Hypothesis 1 and the verdict and likelihood measures, the ID Procedure $\times$ ID Accuracy interaction was not significant, $F(1, 224) = 3.74, p = .054, \eta_p^2 = .02$. Critically, and in contrast to Hypotheses 2 and 3, the judicial instructions did not significantly influence participants' perceptions of the witness, $F_s < 1.87, p_s > .10$.

Bayesian ANOVA. In contrast to the inferential statistics and in support of Hypothesis 1, the Bayesian ANOVA provided stronger support for the model with the ID Procedure $\times$ ID Accuracy interaction ($BF_{10} = 1,257$) compared to the model with the two main effects ($BF_{10} = 966$). Contrary to Hypothesis 2 and in line with the inferential statistics, the Bayesian ANOVA demonstrated that the model with the ID Procedure $\times$ Judicial Instructions interaction provided strong evidence for the null hypothesis over the alternative ($BF_{01} = 3.98$). The Bayesian ANOVA provided some support for Hypothesis 3: the model including the ID Accuracy $\times$ Judicial Instructions interaction had strong support for the alternative hypothesis over the null ($BF_{10} = 17$). Nonetheless, the ID Procedure $\times$ ID Accuracy model outperformed this model by a factor of more than 70. Finally, the model with only the judicial instructions term included provided weak evidence in support of the null hypothesis over the alternative hypothesis ($BF_{01} = 2.50$).

Perceptions of the Lineup Fairness

Higher numbers on this measure indicate that participants perceived the lineup as more fair. As predicted in Hypothesis 4, the main effect of the ID procedure revealed that participants were aware of the biased nature of the suggestive procedure, $F(1, 224) = 31.57, p < .001, d = 0.76 [0.45, 1.06]$. Participants rated non-suggestive ID procedures as more fair ($M = 7.89, SD = 1.99$) than suggestive procedures ($M = 6.09, SD = 2.74$). All other main effects and interactions were not significant, $F_s < 1.46, p_s > .23$.

Bayesian ANOVA. The Bayesian ANOVA supported the inferential results; the model that included only ID procedure outperformed any other model ($BF_{10} = 342,680$). The model

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with only the judicial instructions term included provided moderate evidence in support of the null hypothesis over the alternative hypothesis ($BF_{01} = 3.26$).

Perceptions of the Lineup Administrator

On this aggregate measure, higher numbers indicate greater perceived administrator influence. There were significant main effects of ID procedure, $F(1, 222) = 24.30, p < .001, d = 0.64 [0.36, 0.92]$, and ID accuracy, $F(1, 222) = 11.68, p = .001, d = 0.44 [0.16, 0.73]$. As predicted in Hypothesis 4, participants perceived the lineup administrator as exerting more influence on the eyewitness when the ID procedure was suggestive ($M = 4.03, SD = 2.40$) than when it was non-suggestive ($M = 2.64, SD = 1.95$). Contrary to our predictions, participants reported greater administrator influence if they saw an inaccurate ID ($M = 3.84, SD = 2.16$) compared to an accurate ID ($M = 2.85, SD = 2.32$). The judicial instructions did not significantly affect participants' perceptions of the lineup administrator, $F_s < 3.36, p_s > .07$.

Bayesian ANOVA. The Bayes factor supported the inferential results. The model with the two main effects of ID procedure and ID accuracy outperformed all other models ($BF_{10} = 212,344$). The model with only the judicial instructions term included provided weak evidence in support of the null hypothesis over the alternative hypothesis ($BF_{01} = 1.66$).

Confidence-in-Verdict Measure

The confidence-in-verdict scores ranged from -100 to 92. The ANOVA revealed a main effect of ID Accuracy, $F(1, 165) = 18.38, p < .001, d = 0.67 [-8.27, 9.61]$. Participants were more confident in guilty verdicts when an eyewitness was accurate ($M = 8.15, SD = 64.42$) and more confident in not-guilty verdicts when an eyewitness was inaccurate ($M = -31.98, SD = 55.67$).

There was a significant ID Accuracy $\times$ ID Procedure interaction on participants' confidence-in-verdicts, $F(1, 165) = 5.10, p = .025, \eta_p^2 = .03$. The interaction demonstrated

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that participants' reported confidence-in-verdict was sensitive to eyewitness accuracy when the ID procedure was non-suggestive (accurate ID: $M = 9.75$, $SD = 64.98$; inaccurate ID: $M = -51.19$, $SD = 43.22$), $t(84) = 5.10$, $p < .001$, $d = 1.11$ $[-10.47, 12.69]$, but sensitivity was impaired when it was suggestive (accurate ID: $M = 6.58$, $SD = 64.55$; inaccurate ID: $M = -12.76$, $SD = 60.41$), $t(85) = 1.44$, $p = .15$, $d = 0.31$ $[-12.69, 13.31]$ (see Figure 2). The judicial instructions did not have significant independent or interactive effects on participants' verdicts, all F s < 1.31 , p s $> .25$. Please note that these large confidence intervals around the effect size are caused by the large SDs and the fact that the scale ranges from -100 to 100.

Bayesian ANOVA. The Bayesian ANOVA supported the inferential statistics results. The model with the ID Accuracy $\times$ ID Procedure interaction provided strong evidence for the alternative hypothesis ($BF_{10} = 1,614$). We did not make predictions about this measure, but given the similarity of the results to the verdict and likelihood measures, we also include the Bayes Factors for the two hypothesized interactions with judicial instructions. The ID Accuracy $\times$ Judicial Instructions model provided strong evidence for the alternative hypothesis over the null ($BF_{10} = 75$), whereas, the ID Procedure $\times$ Judicial Instructions model provided strong evidence of the null hypothesis over the alternative ($BF_{01} = 10$). Notably, however, the ID Accuracy $\times$ ID Procedure outperformed both of these models by a factor of more than 20. Finally, the model with only the judicial instructions term included provided weak evidence in support of the null hypothesis over the alternative hypothesis ($BF_{01} = 1.63$).

Comprehension of the Instructions

The questions and correct answers are reported in Table 1. For questions with three response options, the chance level was .33, for questions with two options the chance level was .50. Binomial tests indicated that participants gave correct answers to nine out of ten questions at a level significantly higher than chance (see Table 1). Thus, participants who

received the judicial instructions demonstrated near perfect understanding of the information provided to them.

Discussion

The present study tested the effectiveness of judicial instructions in sensitizing participants to the quality of the identification conditions and to eyewitness accuracy presented on video. Contrary to Hypotheses 2 and 3, but in line with previous studies with US-based instructions, the Victorian judicial instructions did not improve participants' sensitivity to suggestive identification procedures or to identification accuracy. Instead, they either had a null effect or led to confusion. Specifically, when participants viewed suggestive identification procedures, those who read the instructions estimated a higher likelihood that the witness correctly identified the culprit compared to those in the control condition. Thus, not only did the judicial instructions not sensitize participants to the quality of identification procedures, they exaggerated participants' insensitivity to suggestive procedures. This inability of the Victorian judicial instructions to sensitize participants is especially troubling because the procedures violated several best-practice recommendations (single-blind administration, biased instructions, and biased lineup; Wells et al. 1998).

Our finding that the judicial instructions were ineffective in improving people's evaluations of eyewitness evidence replicates previous studies with different versions of judicial instructions (Ramirez et al. 1996: Experiment 1; Pawlenko et al. 2013). However, our study makes an important contribution because the Bayesian analyses provide informative evidence about null effects that is not possible with null-hypothesis significance testing (see e.g., Dienes 2014). Thus, the Bayesian analyses give more weight to our conclusion that judicial instructions do not improve jurors' sensitivity to identification conditions or to identification accuracy.

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Regardless of judicial instruction condition, participants appropriately reported that the non-suggestive identification procedure was fairer and that the lineup administrator had less influence on the eyewitness than in the suggestive procedure. Nonetheless, this knowledge did not translate into more not-guilty verdicts or greater disbelief of eyewitnesses in the suggestive procedure condition. Our findings replicate prior work demonstrating that even when jurors understand the suggestiveness of an identification procedure, they may fail to adjust their verdict decisions accordingly (Devenport et al. 2002). It is worth noting, however, that even though participants were somewhat sensitive to the suggestiveness of identification procedures, their ratings of lineup fairness and administrator influence never crossed the mid-point of the scale, demonstrating that they underestimated the magnitude of suggestiveness.

In line with previous research and supporting Hypothesis 1, the present study demonstrated that when shown video-recorded identification evidence and testimony, participants can be sensitive to eyewitness accuracy when identifications are obtained from non-suggestive procedures (Beaudry et al. 2015; Reardon and Fisher 2011). However, as hypothesized, viewing identifications from a suggestive procedure impaired this sensitivity. This impairment was evident in participants' verdicts, in their confidence in those decisions, and in their assessment of the accuracy of the witness's identifications.

These findings underscore the importance of how police conduct their identification procedures (Zimmerman et al. 2012) because eyewitnesses who identify a suspect under suggestive circumstances might make faster identification decisions (Weber et al. 2004) and might appear more confident at the time of the identification and at the trial (Brewer and Wells 2006). Moreover, police practices not only affect the reliability of an identification made by an eyewitness, they also influence jurors' evaluation of that evidence (e.g., Beaudry et al. 2015; Douglass et al. 2010; Smalarz and Wells 2014). Our understanding of the effects

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of suggestive procedures is limited and warrants further attention. Just as Brewer et al. (2007) called for more theoretical advancements in eyewitness psychology, more theory development is required to guide research exploring how jurors evaluate video-recorded identification procedures. It is imperative to establish which factors influence these evaluations and how other legal safeguards (e.g., expert testimony) may affect jurors' perceptions of video-recorded identification procedures shown with eyewitness testimony.

In summary, participants believed accurate eyewitnesses more often than inaccurate ones when the identification procedure was non-suggestive. However, participants' sensitivity was impaired when the identification procedure was suggestive. Even though participants understood the Victorian judicial instructions, the instructions did not improve the accuracy of participants' judgments and, worse, produced confusion on one measure. The Bayesian analyses supports the null results from our inferential tests; that is, our evidence suggests that judicial instructions had no meaningful effect on participants' perception of the evidence or their related decisions.

Potential Explanations for the Ineffectiveness of Judicial Instructions

We consider four explanations for the ineffectiveness of the judicial instructions to improve participants' sensitivity to suggestive identification procedures and identification accuracy. First, one possible explanation for participants' confusion is that they misunderstood the judicial instructions (for a review, see Baguley et al. 2017). This explanation is unlikely in our study because participants gave the correct answer to nine of the ten comprehension questions. Due to an oversight, we did not assess the control group's performance on the comprehension test; thus, it is unclear whether providing the instructions improved participants' knowledge or whether participants had a good understanding of eyewitness issues before participating in the study. It is clear, however, that participants did not appropriately apply the instructions to the case at hand (Rose and Ogloff 2005).

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A second possible explanation for the lack of sensitivity to suggestive identification procedures is that the instructions did not provide enough guidance for the participants to apply the information. Although the Victorian judicial instructions contained information about the exact biases present in our study, they did not explain how these factors can affect the accuracy of the identification or how to integrate the instructions into their decisions. For example, this instruction speaks to the suggestiveness of the lineup construction: “Was the identification process conducted fairly? For example, did the other people in the photoboard look sufficiently similar to the accused?” It does not, however, explain that eyewitnesses are more likely to mistakenly identify an innocent person when the accused stands out in the photoboard.

Given that laypeople may have a limited understanding of how various factors affect eyewitnesses, it is possible that participants could have misunderstood or miscalculated the effect of one or more factors on the eyewitness’s identification. The lack of guidance on how to apply the relevant information to the actual case might be the missing step that is necessary for judicial instructions to be effective—application (McGuire 1972). However, an investigation of the *Henderson* instructions, which provide mock-jurors with explicit explanations of how each factor influences eyewitness memory, did not improve mock-jurors’ decisions (e.g., Jones et al. 2017). Nonetheless, the reliance on null-hypothesis significance tests in that study means that we cannot interpret this null effect as evidence of ineffectiveness.

A third potential explanation of the general ineffectiveness of judicial instructions is that by the time jurors hear them, usually at the end of the trial, they would have already constructed a story explaining the evidence. According to the story model of jury decision-making (Pennington and Hastie 1986), jurors construct stories about the events in question based on the facts of the case as presented during the trial. It might be difficult to alter this

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story once constructed. However, the impact of judicial instructions on jurors' story constructions, to our knowledge, has not been explicitly assessed.

A fourth possible explanation comes from the application of the dual process models of persuasion (Petty and Cacioppo 1986; Chaiken 1980). As discussed in Baguley et al. (2017), jurors might not properly apply information contained in the instructions when they superficially process the instructions rather than elaborate on them. Elaboration is largely determined by two factors: ability and motivation. Ability can refer to literacy and cognitive capacity to comprehend the information. It is unlikely that this explanation is relevant to our study because our participants were university students. On the other hand, participants might have lacked the motivation because they might not have felt personal responsibility for their decisions and were aware that their decisions would not result in real-life consequences. Motivation might be particularly problematic in studies where the judicial instructions are presented in a written format (as in our study) rather than presented orally to the participants. Unmotivated participants might be more likely to skim the instructions rather than read them carefully (Baguley et al. 2017). Although jurors could arguably be more motivated in a real trial, the length and complexity of real trials might impair jurors' attention span and decrease their ability to process information. Future research should consider strategies to increase participants' motivation within the research context and jurors' ability within real legal settings.

Limitations

One limitation of this study is its sample size. Although each of our conditions (except one) met Simmons et al.'s (2011) recommendation of having a minimum of 20 participants per cell, we acknowledge that it would be preferable to have more participants in this study. Nonetheless, the Bayesian analyses give our results additional credibility because they can quantify the evidence for both the null and the alternative hypotheses (or for neither if there

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was not enough evidence; e.g., Dienes 2014). Moreover, as sample size increases Bayes Factors will provide more support for the null (Dienes 2014); thus, increasing the number of participants is unlikely to reveal that the judicial instructions are effective. Nonetheless, future research should seek to replicate our findings taking into account more recent sample size recommendations (e.g., Giner-Sorolla 2018; Simmons et al., 2018).

A second limitation of this study was that it was conducted online, which may have influenced how much attention participants paid to the stimuli. Nonetheless, surveys administered online have produced results equivalent to those obtained in laboratory-based research (e.g., Brock et al. 2012; Lieberman 2008; Riva et al. 2003). We included a series of manipulation checks to ensure that we did not include responses from inattentive participants. In addition, students participated for course credit and knew that they would have to provide key pieces of information (i.e., identifying the independent variables, dependent variables, and purpose of the research) to the Research Experience Program team to earn their course credit. Thus, the online nature of the study likely had minimal impact on our results. Another possible limitation of this study is that the duration of the experimental condition differed from the control condition (four and two minutes, respectively). Future studies should aim for equality in the durations of the experimental and control conditions; however, disparities of up to 15 minutes are not unusual (Jones et al. 2017). In our study, there is little reason to expect that this 2-minute difference affected participants' judgments given that both were relatively short in duration.

A fourth limitation is that our sample consisted of students rather than real or potential jurors from a community sample. It is worth noting, however, that jury simulation studies found similar results with student and community samples (Jones et al. 2017; Bornstein et al. 2017). Additionally, our participants did not have the opportunity to deliberate like they would have in a real trial. Although deliberation can increase or decrease individual bias,

depending on the circumstances of the case (Devine 2012), it is not yet clear how it would affect their assessment of video-recorded eyewitness evidence.

Another possible limitation concerns our approach to measuring participants' comprehension of judicial instructions because multiple-choice tests are arguably more suitable for measuring memory for the instructions rather than comprehension (Ogloff and Rose 2005). Importantly, however, we did not simply measure comprehension of the information, but also tested whether participants applied the information to the case at hand. Future research should examine more closely the mechanism behind judicial instructions' ineffectiveness in eyewitness cases.

Implications for Future Research

Taken together with previous research, this study underscores the need to revise the traditional approach to educating the jury. Years of research into the effectiveness of judicial instructions has demonstrated that even though some changes, such as rewriting the instructions, or changing the time of their presentation, can improve jurors' comprehension, it appears that none of these alterations significantly improve the accuracy of jurors' judgments (e.g., Ogloff and Rose 2005). Novel methods such as question trails or methods that combine PowerPoint slides with a specifically designed tool for assessing eyewitness evidence (e.g., Safer et al. 2016) might be more effective than simply reading the instructions to the jury. This study is one of the first to explore how legal safeguards affect jurors' perceptions of video-recorded identification procedures. It is clear that suggestive identification procedures might corrupt eyewitness evidence and bias jurors' perception of it; thus, omitting suggestive eyewitness evidence from court may be the best solution currently available. In order for this to be an effective strategy, attorneys and judges need to be aware of the damaging effects of suggestive procedures, need to be able to recognize such procedures (e.g., Stinson et al.

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1997), and then prevent these suggestive procedures and the associated eyewitness evidence from appearing before a jury.

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Appendix A

A Sample Non-Suggestive Lineup (Below) and a Sample Suggestive Lineup (Bottom)

Note. The yellow arrow points to the suspect in each lineup; it was not present at the time of the identification, it was added for participants.

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Appendix B

Victorian Judicial Instructions

Jury Directions Act 2015 (Date modified: June 29, 2015)

Identification is an important issue in this case. The case against the defendant depends, to a significant extent, on evidence claiming to identify the defendant from a photoboard.

Before you decide whether to accept this evidence, I must give you some warnings about identification evidence.

Before I give you these warnings, and to help you understand the reason why I am giving you these warnings, I will briefly explain how people are identified.

There are three stages that are involved whenever a positive identification is made and a witness may make an error at each stage. First, the witness must have observed somebody during the crime. Second, the witness must have retained an image of that person in his or her mind until the time of the identification. Third, the witness must have later seen the defendant, or a picture of the defendant, and identified him or her as being the person seen who committed the crime.

Identification evidence is potentially unreliable. For that reason, you must exercise caution in determining whether to accept the evidence and, if you do accept it, the weight that you accord to that evidence.

One of the reasons that identification evidence is potentially unreliable is that while a witness may honestly believe that his or her evidence is accurate when he or she is actually mistaken. And the mistaken evidence of a witness may be convincing.

The experience of the law has shown that witnesses have given mistaken identification evidence which has resulted in innocent people being convicted.

I will now turn to discuss the significant matters in this case which may make the identification evidence unreliable.

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Having given you that general warning about identification evidence, I now want to look at some of the specific factors that may affect the reliability of the evidence in this case.

Here, there are several factors that may be relevant to your assessment of the reliability of the identification evidence. These are the circumstances in which the offender was observed; the characteristics of the witness who gave evidence; and the way in which the accused was identified.

You should examine each of these factors closely when deciding whether to accept the identification evidence.

I will now look at these factors in more detail.

Circumstances of Observation

You should examine the circumstances in which the offender was observed. You should consider what opportunity for accurate observation existed. Some of the questions you should ask yourself include:

For how long did the witness observe the person?

How far away was the witness from what s/he was observing?

What was the angle of observation? For example, did the witness see the person's face or only his/her back?

Had the witness ever seen the person s/he was observing before?

What was the light like?

Did anything get in the way of the witness's view, such as passing people or traffic?

Did the witness have a reason for trying to observe the person involved and to remember his/her characteristics?

Did the person observed have any distinguishing features or characteristics which would make it likely that the witness would remember him/her? For example, did s/he have a scar or a tattoo?

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Factors Concerning the Witness

You must also consider the characteristics of the witness who gave the identification evidence. In that context, some of the questions you should ask yourself include:

Is it possible to assess the quality of this witness as an observer?

Was the witness stressed or fearful at the time of the observation? If so, what effect would this stress have had on him/her? For some people, their powers of observation increase under stress. Others "black out" and their powers of observation diminish. You need to decide how the witness is likely to have reacted in this case.

Were there any other factors that could have affected the witness's powers of observation, such as drugs or alcohol consumption, or fatigue?

Factors Concerning the Identification

You must consider the way in which the defendant was identified/similarities between the person observed and the defendant were noted. Some of the questions you should ask yourself include:

Did the witness give a description of the offender before identifying the accused? If so, does the description match the accused?

Is the witness relying too heavily on a particular memorable feature or characteristic of the accused in identifying him/her?

How long was there between the incident and the identification? Was it likely that the witness's memory was affected by any delay?

Was the identification process conducted fairly? For example, did the other people in the photoboard look sufficiently similar to the accused?

Did the witness hear a description or see a picture of the accused before attempting to identify the offender?

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Was the witness influenced in any other way to identify the accused – for example, by the behaviour of the police?

In this case, as the defendant was identified from a photograph, I need to give you an additional warning about photographic identification evidence.

This sort of evidence may be unreliable due to the differences between photographs and real life. For example, photographs are two-dimensional, and do not show the way a person moves, the range of their facial expressions, their body shape, or many of the other characteristics that can help you to identify a person.

The photograph used to identify the accused may also have been taken in very different circumstances from those in which the offender was observed. For example, the light in the photograph may be much better than it was at the time of the crime.

These factors can increase the risks of misidentifying the offender, who may look like the accused as seen in a photograph, but may look different when viewed face-to-face. You should therefore treat photographic identification evidence with special care.

There is an additional problem with photographic identification. As the accused was not present during the identification process, he is unlikely to have any first-hand information about the way in which his/her photograph was selected. Instead, s/he can only rely on the cross-examination of the people who were present to gain any information about the conditions in which the identification took place, and what safeguards against error were taken. You should take this disadvantage into account when considering the evidence.

You may have noticed that the defendant was identified from a photograph held by the police. You are not to attach any significance to this fact. The police have photographs of many different people for a variety of reasons. You must not assume that, because the police had a photograph of the defendant, s/he has a criminal record or has previously been charged

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with an offence. In fact, you must not draw any conclusions from the fact that the police had a photograph of the defendant.

If an Identification Parade Could Reasonably Have Been Held

In this case, it would have been possible for the police to hold an identification parade instead of having the eyewitness identify the defendant from a photograph.

In an identification parade, a witness is asked whether they can identify the offender from a selection of people resembling the accused. This process has two main advantages over identification from photographs.

First, the witness is identifying an actual person, rather than a two-dimensional representation of that person. S/he is able to see all of the accused's physical characteristics, such as the way s/he moves and his/her facial expressions. This makes it more likely that the witness will accurately identify the offender.

Secondly, as the accused is present at an identification parade, s/he is able to obtain first-hand information about how it is carried out. S/he will be able to see what steps are taken to make sure that it is conducted fairly, rather than having to rely on cross-examination of the people present.

In this case, the defendant was deprived of these benefits. He may also have lost any advantage s/he might have gained if an identification parade was inconclusive. You should take these disadvantages into account when assessing the evidence against the defendant.

Finally, you should consider any other significant factors that may affect the reliability of the identification evidence.

Summary

To summarise, it is important that you take care in determining whether you accept identification evidence, and if you do accept it, in deciding what weight to give to that evidence.

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If, after careful examination of the identification evidence, and in light of all of the circumstances and other evidence given in the case, you find that the accused was correctly identified, then you can use the evidence in reaching your verdict.

Appendix C

Dependent Variables

1. Do you believe the suspect is guilty? Yes or No [verdict]
2. How confident are you in this decision? 0% = not at all confident, 100% = extremely confident [confidence-in-verdict]
3. What is the likelihood that that the person identified by the witness is actually the culprit? 0% = very unlikely, 100% = very likely [likelihoodID]
4. How would you describe the manner in which the lineup was presented to the witness? 0 = completely unfair, 10 = completely fair [lineup fairness]
5. Perceptions of the witness (combined measure).
 - a. Based on what you saw, how good was the witness' view of the culprit at the time of the crime? 0 = Not good, 10 = Very good
 - b. Based on what you saw, how clear was the witness' memory of the culprit at the time of the lineup? 0 = Not clear, 10 = Very clear
 - c. Based on what you saw, how much attention do you think the witness paid to the culprit's face at the time of the crime? 0 = None, 10 = A lot
6. Perceptions of the lineup administrator (combined measure).
 - a. Did the officer pressure the witness to choose someone from the lineup? 0 = No pressure, 10 = Definite pressure
 - b. Did the officer influence the witness' confidence in their decision? 0 = No influence, 10 = Definite influence
 - c. Based on what you saw, at the time of the lineup procedure, do you think the officer knew which lineup member was the suspect? 0 = Definitely did not know, 10 = Definitely knew

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- d. To what extent do you think the officer was invested in the outcome of the lineup? 0 = Not invested in the outcome, 10 = Extremely invested in the outcome

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Appendix D

Number of Participants in each Condition for All Dependent Variables

ID procedure	ID accuracy	Judicial instructions	Verdict & confidence-in-verdict	Likelihood ID, lineup fairness, perceptions of witness	Perceptions of administrator
Non-suggestive	Accurate	Judicial instructions	23	29	29
		Control	21	31	30
		Total	44	60	59
	Inaccurate	Judicial instructions	16	24	24
		Control	26	32	32
		Total	42	56	56
	Total	Judicial instructions	39	53	53
		Control	47	63	62
		Total	86	116	115
Suggestive	Accurate	Judicial instructions	24	28	28
		Control	21	30	30
		Total	45	58	58
	Inaccurate	Judicial instructions	20	28	27
		Control	22	30	30
		Total	42	58	57
	Total	Judicial instructions	44	56	55
		Control	43	60	60
		Total	87	116	115
Total	Accurate	Judicial instructions	47	57	57
		Control	42	61	60
		Total	89	118	117
	Inaccurate	Judicial instructions	36	52	51
		Control	48	62	62
		Total	84	114	113
	Total	Judicial instructions	83	109	108
		Control	90	123	122
		Total	173	232	230

References

- Austin, J. L., Zimmerman, D. M., Rhead, L., & Kovera, M. B. (2013). Double-blind lineup administration. In B. L. Cutler (Ed.), *Reform of eyewitness identification procedures* (pp. 139–160). Washington, DC: The American Psychological Association.
- Baguley, C. M., McKimmie, B. M., & Masser, B. M. (2017). Deconstructing the simplification of jury instructions: How simplifying the features of complexity affects jurors' application of instructions. *Law and Human Behavior, 41*, 284–304.
doi:10.1037/lhb0000234
- Beaudry, J. L., Lindsay, R. C. L., Leach, A.-M., Mansour, J. K., Bertrand, M. I., & Kalmet, N. (2015). The effect of evidence type, identification accuracy, line-up presentation, and line-up administration on mock-jurors' perceptions of eyewitnesses. *Legal and Criminological Psychology, 20*, 343–364. doi:10.1111/lcrp.12030
- Benton, T. R., Ross, D. F., Bradshaw, E., Thomas, W. N., & Bradshaw, G. S. (2006). Eyewitness memory is still not common sense: Comparing jurors, judges and law enforcement to eyewitness experts. *Applied Cognitive Psychology, 20*, 115–129.
doi:10.1002/acp.1171
- Bornstein, B. H., & Greene, E. (2017). *The jury under fire: Myth, controversy, and reform*. New York: Oxford University Press.
- Bornstein, B. H., Golding, J. M., Neuschatz, J., Kimbrough, C., Reed, K., Magyarics, C., & Luecht, K. (2017). Mock juror sampling issues in jury simulation research: A meta-analysis. *Law and Human Behavior, 41*, 13–28. doi:10.1037/lhb0000223
- Boyce, M. A., Beaudry, J. L., & Lindsay, R. C. L. (2007). Belief of eyewitness evidence. In R. Lindsay, D. Ross, J. Read, & M. Toglia (Eds.), *Handbook of eyewitness psychology: Memory for people* (pp. 25–45). Mahwah, NJ: Lawrence Erlbaum.

THE EFFECTIVENESS OF JUDICIAL INSTRUCTIONS

- Brewer, N., & Wells, G. L. (2006). The confidence-accuracy relationship in eyewitness identification: Effects of lineup instructions, foil similarity, and target-absent base rates. *Journal of Experimental Psychology: Applied*, 12, 11–30. doi:10.1037/1076-898X.12.1.11
- Brewer, N., Weber, N., & Semmler, C. (2007). A role for theory in eyewitness identification research. In R. C. L. Lindsay, D. F. Ross, J. D. Read, & M. P. Toglia (Eds.), *The handbook of eyewitness psychology, Vol. 2. Memory for people* (pp. 201–218). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Brock, R. L., Barry, R. A., Lawrence, E., Dey, J., & Rolffs, J. (2012). Internet administration of paper-and-pencil questionnaires used in couple research: Assessing psychometric equivalence. *Assessment*, 19, 226–242. doi:10.1177/1073191110382850
- Cutler, B. L., & Penrod, S. (1995). *Mistaken identification: The eyewitness, psychology, and the law*. New York: Cambridge University Press.
- Cutler, B. L., Dexter, H. R., & Penrod, S. (1990). Nonadversarial methods for sensitizing jurors to eyewitness evidence. *Journal of Applied Social Psychology*, 20, 1197–1207. doi:10.1111/j.1559-1816.1990.tb00400.x
- Cutler, B. L., Penrod, S. D., & Dexter, H. R. (1989). The eyewitness, the expert psychologist, and the jury. *Law and Human Behavior*, 13, 311–332. doi:10.1007/bf01067032
- Davies v. The Queen* VSCA 66 (2019).
- Desmarais, S. L. & Read, J. D. (2011). After 30 years, what do we know about what jurors know? A meta-analytic review of lay knowledge regarding eyewitness factors. *Law and Human Behavior*, 35, 200–210. doi:10.1007/s10979-010-9232-6
- DeVellis, R. F. (2012). *Scale development: theory and applications* (3rd edition). SAGE, Thousand Oaks, California.

THE EFFECTIVENESS OF JUDICIAL INSTRUCTIONS

- Devenport, J. L., Stinson, V., Cutler, B. L., & Kravitz, D. A. (2002). How effective are the cross-examination and expert testimony safeguards? Jurors' perceptions of the suggestiveness and fairness of biased lineup procedures. *Journal of Applied Psychology, 87*, 1042–1054. doi:10.1037/0021-9010.87.6.1042
- Devine, D. J. (2012). *Jury decision making: The state of the science*. NYU Press.
- Dienes, Z. (2014). Using Bayes to get the most out of non-significant results. *Frontiers in psychology, 5*, 1–17. doi:10.3389/fpsyg.2014.00781
- Dillon, M. K., Jones, A.M., Bergold, A.N. Hui, Y.T., & Penrod, S.D. (2017). Henderson instructions: Do they enhance evidence evaluation? *Journal of Forensic Psychology Research and Practice, 17*, 1-24. doi:10.1080/15228932.2017.1235964
- Douglass, A. B., Neuschatz, S., Imrich, J., & Wilkinson, M. (2010). Does post-identification feedback affect evaluations of eyewitness testimony and identification procedures? *Law & Human Behavior, 34*, 282–294. doi:10.1007/s10979-009-9189-5
- Geiselman, R., & Mendez, B. A. (2005). Assistance to the fact finder: Eyewitness expert testimony versus attorneys' closing arguments. *American Journal of Forensic Psychology, 23*(2), 5–14.
- Greene, E. (1988). Judge's instruction on eyewitness testimony: Evaluation and revision. *Journal of Applied Social Psychology, 18*, 252–276. doi:10.1111/j.1559-1816.1988.tb00016.x
- Harms, C., & Lakens, D. (2018). Making 'null effects' informative: Statistical techniques and inferential frameworks. *Journal of Clinical and Translational Research, 3*(S 2), 382–393. doi:10.18053/jctres.03.2017S2.007
- Jarosz, A. F., & Wiley, J. (2014). What are the odds? A practical guide to computing and reporting Bayes factors. *The Journal of Problem Solving, 7*, 2–9.
- JASP Team (2018). JASP (Version 0.9)[Computer software]. Retrieved

THE EFFECTIVENESS OF JUDICIAL INSTRUCTIONS

from <https://jasp-stats.org/>.

Jones, A. M., & Penrod, S. (2018). Improving the effectiveness of the Henderson instruction safeguard against unreliable eyewitness identification. *Psychology, Crime & Law*, 24, 177–193.

Jones, A. M., Bergold, A. N., Dillon, M.K., & Penrod, S.D. (2017). Comparing the effectiveness of Henderson instructions and expert testimony: Which safeguard improves jurors' evaluations of eyewitness evidence? *Journal of Experimental Criminology*, 13, 29–52. doi:10.1007/s11292-016-9279-6

Judicial Commission of NSW. (2006). Criminal trial courts bench book. Retrieved 24 June 2018, from https://www.judcom.nsw.gov.au/publications/benchbks/criminal/identification_evidence-visual_forms.html

Judicial College of Victoria (2015). Section 4.13.1— Charge: Identification Evidence. *Victorian criminal charge book*. Retrieved from <http://www.judicialcollege.vic.edu.au/eManuals/CCB/index.htm#28083.htm>

Kassin, S. M. (1998). Eyewitness identification procedures: The fifth rule. *Law and Human Behavior*, 22, 649–653. doi:10.1023/A:1025702722645

Lee, M. D., & Wagenmakers, E. J. (2014) *Bayesian cognitive modeling: A practical course*. Cambridge: Cambridge University Press.

Lieberman, D. Z. (2008). Evaluation of the stability and validity of participant samples recruited over the internet. *Cyber Psychology and Behavior*, 11, 743–745. doi:10.1089/cpb.2007.0254

Lindsay, R. C., & Wells, G. L. (1980). What price justice? Exploring the relationship of lineup fairness to identification accuracy. *Law and Human Behavior*, 4, 303–313.

THE EFFECTIVENESS OF JUDICIAL INSTRUCTIONS

- Martire, K. A., & Kemp, R. I. (2009). The impact of eyewitness expert evidence and judicial instruction on juror ability to evaluate eyewitness testimony. *Law and Human Behavior, 33*, 225–236. doi:10.1007/s10979-008-9134-z
- Martire, K. A., & Kemp, R. I. (2011). Can experts help jurors to evaluate eyewitness evidence? A review of eyewitness expert effects. *Legal and Criminological Psychology, 16*, 24–36. doi:10.1348/135532509X477225
- McGuire, W. J. (1972). Attitude change: The information-processing paradigm. In C. G. McClintock (Ed.), *Experimental social psychology* (pp.108–141). New York, NY: Holt, Rinehart and Winston.
- Modjadidi, K., & Kovera, M. B. (2018). Viewing videotaped identification procedure increases juror sensitivity to single-blind photo-array administration. *Law and Human Behavior, 42*, 244–257. doi:10.1037/lhb0000288
- New Jersey v. Henderson*, 27 A.3d 872 (2011).
- Ogloff, J. R. P., & Rose, V.G. (2005). The comprehension of judicial instructions. In N. Brewer & K. D. Williams (Eds.), *Psychology and law: An empirical perspective* (pp. 407–444). New York, NY: Guilford Press.
- Papailiou, A. P., Yokum, D. V., & Robertson, C. T. (2014). The novel New Jersey eyewitness instruction induces skepticism but not sensitivity. *Arizona Legal Studies Discussion Paper No. 14–17*. doi:10.2139/ssrn.2475217
- Pawlenko, N., Safer, M., Wise, R., & Holfeld, B. (2013). A teaching aid for improving jurors' assessments of eyewitness accuracy. *Applied Cognitive Psychology, 27*, 190–197. doi:10.1002/acp.2895
- Pennington, N., & Hastie, R. (1986). Evidence evaluation in complex decision making. *Journal of Personality and Social Psychology, 51*, 242–258.

THE EFFECTIVENESS OF JUDICIAL INSTRUCTIONS

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion.

Advances in Experimental Social Psychology, 19, 123–205. doi:10.1016/S0065-2601(08)60214-2

Ramirez, G., Zemba, D., & Geiselman, R. E. (1996). Judges' cautionary instructions on eyewitness testimony. *American Journal of Forensic Psychology*, 14, 31–66.

Reardon, M. C., & Fisher, R. P. (2011). Effect of viewing the interview and identification process on juror perceptions of eyewitness accuracy. *Applied Cognitive Psychology*, 25, 68–77. doi:10.1002/acp.1643

Riva, G., Teruzzi, T., & Anolli, L. (2003). The use of the internet in psychological research: comparison of online and offline questionnaires. *Cyberpsychology and Behavior*, 6, 73–80.

Steblay, N. K. (1997). Social influence in eyewitness recall: A meta-analytic review of lineup instruction effects. *Law and Human Behavior*, 21, 283–297.
doi:10.1023/A:1024890732059

Steblay, N. K., Wells, G. L., & Douglass, A. B. (2014). The eyewitness post identification feedback effect 15 years later: Theoretical and policy implications. *Psychology, Public Policy, and Law*, 20, 1–18.

Stefan, A. M., Gronau, Q. F., Schönbrodt, F. D., & Wagenmakers, E. J. (2019). A tutorial on Bayes Factor Design Analysis using an informed prior. *Behavior Research Methods*, 51, 1042–1058

Stinson, V., Devenport, J. L., Cutler, B. L., & Kravitz, D. A. (1997). How effective is the motion-to-suppress safeguard? Judges' perceptions of the suggestiveness and fairness of biased lineup procedures. *Journal of Applied Psychology*, 82, 211–220.

Safer, M. A., Murphy, R. P., Wise, R. A., Bussey, L., Millett, C., & Holfeld, B. (2016).

Educating jurors about eyewitness testimony in criminal cases with circumstantial and

forensic evidence. *International Journal of Law and Psychiatry*, 47, 86–92.

doi:10.1016/j.ijlp.2016.02.041

Semmler, C., & Brewer, N. (2002). Using a flow-chart to improve comprehension of jury instructions. *Psychiatry, Psychology and Law*, 9, 262–270.

doi:10.1375/pplt.2002.9.2.262

Shaw III, J. S., Garcia, L. A., & McClure, K. A. (1999). A lay perspective on the accuracy of eyewitness testimony. *Journal of Applied Social Psychology*, 29, 52–71.

doi:10.1111/j.1559-1816.1999.tb01374.x

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology: Undisclosed flexibility in data collection and analysis allows presenting anything as significant. *Psychological Science*, 22, 1359–1366. doi:10.1177/0956797611417632

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2018). False-positive citations. *Perspectives on Psychological Science*, 13, 255–259. doi:10.1177/17456961617698146

Smalarz, L., & Wells, G. L. (2014). Post-identification feedback to eyewitnesses impairs evaluators' abilities to discriminate between accurate and mistaken testimony. *Law and Human Behavior*, 38, 194–202. doi:10.1037/lhb0000067

Tenney, E. R., MacCoun, R. J., Spellman, B. A., & Hastie, R. (2007). Calibration trumps confidence as a basis for witness credibility. *Psychological Science*, 18, 46–50.

The Innocence Project. (2019). *Eyewitness misidentification*. Retrieved from www.innocenceproject.org

United States v. Telfaire, 469 F.2d 552 (D.C. Cir. 1972).

Wagenmakers, E. J., Marsman, M., Jamil, T., Ly, A., Verhagen, J., Love, J., Selker, R., Gronau, Q. F., Smira, M., Epskamp, S., Matzke, D., Rouder, J. N., & Morey, R. D. (2018). Bayesian inference for psychology. Part I: Theoretical advantages and practical ramifications. *Psychonomic Bulletin & Review*, 25, 35–57.

THE EFFECTIVENESS OF JUDICIAL INSTRUCTIONS

- Weber, N., Brewer, N., Wells, G. L., Semmler, C., & Keast, A. (2004). Eyewitness identification accuracy and response latency: The unruly 10–12-second rule. *Journal of Experimental Psychology: Applied*, 10, 139–147. doi:10.1037/1076-898X.10.3.139
- Wells, G. L., & Windschitl, P. D. (1999). Stimulus sampling and social psychological experimentation. *Personality and Social Psychology Bulletin*, 25, 1115–1125. doi:10.1177/01461672992512005
- Wells, G. L., Lindsay, R., & Ferguson, T. (1979). Accuracy, confidence, and juror perceptions in eyewitness identification. *Journal of Applied Psychology*, 64, 440–448. doi:10.1037/0021-9010.64.4.440
- Wells, G. L., Small, M., Penrod, S., Malpass, R. S., Fulero, S. M., & Brimacombe, C. E. (1998). Eyewitness identification procedures: Recommendations for lineups and photospreads. *Law and Human Behavior*, 22, 603–647.
- Wilford, M. M., & Wells, G. L. (2013). Eyewitness system variables. In B.L. Cutler (Ed.), *Reform of eyewitness identification procedures* (pp. 23–43). Washington, DC: American Psychological Association.
- Wixted, J. T., & Wells, G. L. (2017). The relationship between eyewitness confidence and identification accuracy: A new synthesis. *Psychological Science in the Public Interest*, 18, 10–65. doi:10.1177/1529100616686966

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Table 1

Questions Assessing the Comprehension of the Judicial Instructions, and Percentage of Mock-jurors who Gave the Correct Answer

Question	Correct answer	Percentage correct
How many stages of memory are involved in the process of making a positive identification?	Three	91%***
What are the stages of memory that are involved in the process of making a positive identification?	Observation; Retention; Identification	89%***
Identification evidence is potentially unreliable.	True	98%***
A witness may think that s/he is accurate and still be mistaken	True	100%***
What are the three factors that were discussed in the instructions that are relevant to assessing the reliability of a witness' identification?	Circumstances of observation; the characteristics of the witness; factors concerning the identification	71%
Which of these factors should <i>not</i> be considered when evaluating the circumstances of observation	Eyewitness's mood	73%***
Which of these factors should <i>not</i> be considered when evaluating the characteristics of the witness	Gender of the eyewitness	87%***
Stress increases the accuracy of a witness' identification	False	69%***
An identification procedure is fair if:	The police officer did not know who the suspect was	83%***
The degree of similarity between the suspect and other people in the photoboard can influence accuracy of identification	True	93%***

Note. *** $p < .001$

Figure 1. Two-way interaction between identification accuracy and identification procedure on mock-jurors' verdicts. Error bars reflect 95% confidence intervals.

Note. $*p < .05$. $***p < .001$.

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Figure 2. Two-way interaction between identification accuracy and identification procedure on mock-jurors' confidence-in-verdict. Values above zero indicate confidence in a guilty verdict, whereas values below zero indicate confidence in a not-guilty verdict. Error bars reflect 95% confidence intervals.

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Figure 3. Two-way interaction between identification procedure and judicial instructions on mock-jurors' estimate of the likelihood that the witness made an accurate identification. Error bars reflect 95% confidence intervals.